

THIN FILM TRANSISTOR ARRAY OF ACTIVE MATRIX TYPE DISPLAY DEVICE AND PRODUCTION THEREOF

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Abstract

PURPOSE: To form a capacity element of an extremely small occupying area in a picture element region by forming an auxiliary capacity electrode of a metallic film of tantalum, coating the surface thereof with tantalum oxide and forming the capacity insulating film between the auxiliary capacity electrode and the picture element electrode of the tantalum oxide film.

CONSTITUTION: A gate insulating film 4 on the auxiliary capacity electrode 3 of the tantalum coated with the surface oxide film 31 of the auxiliary capacity electrode consisting of the tantalum oxide is removed to expose the surface oxide film 31 of the auxiliary capacity electrode across the region C. Although the auxiliary capacity electrode 3 consisting of the opaque tantalum metal exists within the picture element region of the picture element electrode 8 in the capacitor element of this region C, the dielectric material of the capacitor element consisting of this auxiliary capacity electrode 3 and the picture element electrode 3 as respective electrodes is constituted by only the one layer of the surface oxide film 31 of the auxiliary capacity electrode of the tantalum oxide having a high dielectric constant, by which the capacity value of the capacitor element is greatly increased. In addition, the designing of this element to the extremely small area is possible. The degradation in the effective light transmittance in the picture element region is suppressed.

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